Society Reports.

NEW YORK NEUROLOGICAL SOCIETY.

Meeting, December 2, 1890.

The President, Dr. LANDON CARTER GRAY, in the chair.

SPECIMENS OF PACHYMENINGITIS INTERNA HÆMORRHAGICA.

Dr. F. FERGUSON presented three specimens of this condition. After giving the histories in detail, he stated that they represented only a small part of a considerable number which he trusted he should be allowed to bring before the Society on some future occasion, when he proposed to go more fully into the subject and give the conclusions he had drawn from a study of his cases.

THE PATHOLOGICAL ANATOMY OF TIC-DOULOUREUX.

This was the subject of a paper by Dr. C. L. DANA. He said that inveterate trigeminal neuralgias were usually caused by local disease, such as bony tumors, aneurisms or syphilitic exudations; but the ordinary cases of tic-douloureux, occurring after middle life, affecting chiefly the second branch of the trigeminus, were not due to such causes. Little was known of its anatomy, it being generally believed that there was no especial change in the nerve or its centres, and that the disease was a neurosis. Anstie was of the opinion that tic and other chronic neuralgias were due to atrophic changes in the root and sensory ganglia. Dr. De Schweinitz had recently reported one case in which he had found evidence of some degenerative inflammation in the nerve. Recently the Gasserian ganglion, removed in a case of tic, was found to show degenerative atrophy. The author was confident that neuritis and degenerative changes in the nerve were not the usual and ordinary conditions in tic-douloureux, for in almost all of the cases, no matter how old, no permanent anæsthesia occurred. On the other hand, in cases of progressive trigeminal anæsthesia, due to degenerative neuritis, there had been but little pain. The question arose, therefore, whether there was any tangible cause of the condition. The author's proposition was that many cases were due to an obliterating arteritis of the nutrient vessels of the nerve. His reasons for these views were:

1. That the disease occurred only at a time of life when degenerative changes in the arteries began.
2. That it affected chiefly and primarily one of the terminal branches of the internal maxillary. If it extended or recurred, it involved the inferior dental. It rarely affected seriously the supra-orbital nerve, which was supplied by a branch of the internal carotid. Hence the disease followed a certain fixed vascular distribution.
3. That he had examined four superior maxillary nerves, removed in typical cases of tic-douloureux; in none were there any noteworthy changes in the nerves. In three of them striking evidence of arterial disease was found. In the fourth case no blood-vessel was present in the specimen.
4. The view that an obliterating arteritis was a factor in this disease was strengthened by therapeutical experience. Nitro-glycerine would sometimes relieve pain instantly and prevent a return for a long period of time. Aconite, which was so useful in this disease, also lowered blood-tension; while potassium iodide, which sometimes favorably modified arterial disease, was occasionally useful in tic.
5. That there was unquestionable evidence that removal of the peripheral nerves sometimes cured tic entirely, and hence the disease was peripheral and due to some local peripheral irritation.
6. Certain authors had recently stated that by a new method of injection they had been able to discover a closer and more extensive relationship between the nerve-trunks and blood-vessels than had hitherto been known, and they suggested in their conclusions that disturbances in blood supply might be a serious factor in causing neuralgia.

The author then gave the histories of a number of cases which he considered typically corroborative of his theory. He adduced positive facts that the trigeminus and its roots, and even nuclei and deep roots, were not diseased even in old and typical cases. In all cases where the vessels were examined, striking disease was found to be present. Circumstantial evidence was found by therapeutic experiment and the general etiology and anatomical distribution of the vessels and of the pains. His argument, he said, was defective, in that he had not examined the infra-orbital arteries of healthy persons of from forty to sixty years of age. But this was not much of a defect, for the reason that with obliterating arteritis there must be some specific vulnerability of the nerve centres. At present it seemed to the author that it would be pretty safe for him to assert that most of the typical cases of tic-douloureux occurring after middle life were due to an obliterating arteritis of the infra-orbital or inferior dental artery, terminal branches of the external carotid, plus some peculiar vulnerability of the central nervous system.

DISCUSSION.

In reply to a question by Dr. Ferguson, Dr. DANA said that he had not been aware of the existence of any renal symptoms or of any changes in the temporal or renal arteries in any of the cases he had mentioned. He thought that in such typical cases of chronic neuralgias—as, for instance, sciatica—evidences of arterial changes would be found, if sought for.

THE PRESIDENT thought the theory that Dr. Dana had advanced well worthy of consideration. No doubt, nervous phenomena were met with in which great pain was present, but which led to no changes in the nerve bundles.

Dr. DANA said that he had been struck with the effect produced by the exhibition of nitro-glycerine in these cases. This drug was not an anodyne, but its action was essentially upon the circulation.

A NEW SYSTEM OF THERAPEUTIC ADMINISTRATION OF STATIC ELECTRICITY.

Dr. WILLIAM JAMES MORTON read a paper with this title. His new system comprised the development by an influence machine of a rapidly interrupted and graduated current, by means of a circuit-breaker, introduced into a circuit with and without condensers, and in the medical application of this current without and within the human body, by moistened sponge or other electrodes, just as in the case of the ordinary galvanic and faradic currents. It involved the removal of the spark, in itself more or less disagreeable and painful and often difficult to localize, especially about the face and neck, away from the patient's body, and yet retaining all the physiological effects of the kinetic or current part of the circuit. The spark was no longer a direct feature of the administration; it occurred at some distant part of the necessarily closed circuit, and in modified form now became mainly a regulator for timing the discharge of the equalizing potentials. The circuit-breaker consisted of a pair of metallic ball electrodes, introduced at any point of the circuit, having a narrow air space between the balls; the circuit "makes" when a small spark overcomes the resistance of the intervening air, and "breaks" when it failed to do so, and the current was due to rapidly successive equalizations of the differences of potential of oppositely charged condensers, whether prime conductors or with the addition of Leyden jars. The circuit-breaker served—

1. To afford time, infinitely brief, to the prime conductors and condensers, if used, to charge.
2. To regulate the frequency of the discharge and collaterally the frequency of the succession of transient currents, so that their aggregate might be classed as a steady current.
3. To determine the strength of the current.

This latter might be varied at will and with the utmost nicety, from a just perceptible to a most powerful effect. The spark circuit-breaker practically represented the vibrator in the primary of an induction coil, the specific inductive capacity of the air replacing the spring and its magnetic attractability.

In describing the physical properties of the Franklinic interrupted current, the author said that it was neither a sudden and transient form, spark or shock, nor an ineffective continuous flow, but that it was a succession of relatively small sudden discharges. A single spark would produce but a single contraction, instantly recovered from; a continuous flow, no effect. The Franklinic interrupted produced the effect of physiological tetanus. It therefore stood distinct and by itself, as capable of producing a result unattainable by either of the forms, galvanic or faradic. Applied to a motor point, the Franklinic interrupted current produced most vivid and persistent muscular contraction with a minimum of pain; applied further back on the trunk of a motor nerve, it threw large groups of muscles into contraction. The contraction was peculiarly painless as compared with that of faradic coils, and the influence was remarkably diffusive. Accompanying a contraction of a large group of muscles was a peculiar sensation of lightness and buoyancy of the member. It was applicable to every form of muscular paralysis, for there was no practical stimulus to nerve and muscle except the electric, and none more energetic than this form of it. Its effects upon the Hallerian irritability of the muscular tissue included an effect upon the lymphatics, and to this might doubtless be referred many clinical results of relief, as in lumbago and all forms of muscular rheumatism, sub-acute and chronic rheumatic affections of joints, ovarian or pelvic pain, sciatica or other neuralgias.

One of the characteristics of this current was its power of relieving pain. Gynæcologically this system of conveying the current within the cavities of the body opened out a wide and promising field of clinical results. From a very considerable experience the author was satisfied that this current penetrated more deeply into the human body than did that of the galvanic.

In conclusion, the new points brought forward were:

1. The generalizing of what the author had announced as an isolated fact in 1881, that a regulated interruption in the otherwise inoperative circuit of a Holtz machine would produce in another part of a current adapted to electro-therapeutic practice. This current was now designated the Franklinic interrupted current. It included the adaptation of the parts of a Holtz machine to produce the results.
2. A new electrode combining this current with the various terminals.
3. The practice of introducing Franklinic electricity in current form into the interior cavities of the human body.

DISCUSSION.

Dr. DANA thought that the author of the paper was to be congratulated upon the originality and value of his method. A good deal could be said in corroboration as to the value of the static current. If he must criticise, he thought that, in testing for the reaction of degeneration, the static current stood in the same relation as the faradic, and that the response was last to the galvanic current. If Dr. Morton had made any physiological experiments which disproved this, the speaker would be glad to know it. He thought that they all regretted the statement made as to the penetrating power of this current, or rather that it had been made without proof being adduced. His own experience would warrant the conclusion that the static was by no means as penetrating as the galvanic current.

Dr. A. H. GOELET said that, with only limited experience with the static method, he thought that it might be employed with advantage where the object was to produce marked muscular contractions without the pain to which the faradic too often gave rise.

THE PRESIDENT said that he had as yet failed to see the advantages which the static current had over the galvanic, or at least the galvanic in combination with the faradic. The machine for its administration was very costly and difficult to learn in all of its modifications. While there might be points in which it might be more advantageously employed than the faradic machine, he could not see how this was true in reference to the galvanic. In many cases he had employed galvanic electricity in ovarian troubles with marked success, in which the results were indubitable. He did not think that this could be said of the static machine. He did not wish to be considered captious in his criticism, for he made use of the static machine in his office, but would merely ask Dr. Morton wherein lay the alleged advantages.

Dr. MORTON said that he had purposely refrained from alluding to static electricity as a diagnostic agent in testing the reaction of degeneration, but as to its penetrability he had produced nausea on application to the back of the neck, and had produced contractions in sets of muscles by the current applied over a nerve trunk. Applied to a motor point, the contractions were of course marked. He would like to know if some one could give any further demonstration that would show a deeper penetration by the galvanic current. As an analgesic, he thought that a series of test cases would demonstrate that it had equal claims with the galvanic current, and that it ought to take average working rank in electro-therapeutics. He thought that static electricity would be better appreciated if the subject was more thoroughly understood.

HOMONYMOUS HEMIOPIC HALLUCINATIONS.

Dr. FREDERICK PETERSON read a paper with this title. In a previous contribution on this subject the author had described a case of chronic delusional insanity, or paranoia, in which the visual hallucinations had the remarkable peculiarity of always appearing in the right field. There was no hemianopsia present. Dr. Seguin, in his "Clinical Study of Lateral Hemianopsia," had detailed a case of embolism of the left occipital artery, in a woman, aged thirty-four, who, at the close of the third confinement, just after the child was born, had a peculiar attack, in which she experienced a snap or sudden pain in the left temple, and felt giddy. For several days afterward she had severe pain in the head, and could not see objects to her right. At the same time that she first noticed darkness to her right, there were a few simple hallucinations in the dark half field. Dr. Van Duyn, of Syracuse, had sent the speaker notes of a case presenting the phenomena of hallucinations occurring in the dark fields of hemianopsia. One week after the occurrence of the blindness the patient began to see, in the dark field, cats and dogs, and children arranging themselves in rows, and forming processions. This had continued without any variation or interruption, except during sleep, for four weeks. After the fourth week the hallucinations had disappeared quite suddenly, and had never returned. The hemiopia continued. Hemianopsia had been frequently observed by various authors as occurring in epilepsy. A case of this kind had recently come under the speaker's observation. A boy, aged eleven, had had for two years an attack of *grand mal* about once a week. He had always had a visual aura of a white star shining to the left.

While hemianopsia, muscæ volatantes, etc., were frequent precursors of migraine, the appearance of hemiopic spectra in the dark portions of the visual field was rather infrequent. By far the best contributions to the subject of homonymous hemiopic hallucinations, in connection with organic disease of the brain, were those of Henschen, in his remarkable work recently published. This author had stated as his opinion that the physiological basis for these phenomena must of course lie in the irritation of the cortex of the occipital lobe. The speaker said that in this connection he could not do better than quote from a letter of Dr. Seguin's, who had written as follows:

"As regards the hemiopic auræ of epilepsy and migraine, they have been a great deal mentioned, but I doubt if the true theory of the projection has yet been published. Hammond, some years ago, read a paper on thalamic epilepsy, in which he attributed hemiopic auræ to irritation of the thalamus. Several of us held out for a cortical irritation, but we did not then know the visual centre. However, I think that it does not follow that the irritation in such cases is of the cuneus. This is undoubtedly a positive centre—a sort of first cortical station—for visual impressions; but there are many reasons for thinking that residua of visual impressions are redistributed and stored in various gyri of the occipital lobe, so that while destruction of the cuneus and of the gyrus just below must abolish half of vision, it does not follow that all projections are due to an irritation of this small part; they may be due to irritation of various parts of the occipital cortex, on one side for hemiopic auræ."

As to the hemianopsia of migraine, Dr. Seguin thought that "spasm of the occipital artery, supplying the cuneus on one side, may quite surely be assumed to occur." The author was of the opinion that partial anæmia in the cortex, due to the same cause, might account for the hallucinatory symptoms in the same disease. While irritation from organic lesions and from vascular spasm made clear the origin of these phenomena in most of the cases cited, the manner of their production in a case of paranoia, such as the speaker had previously described, was rather more difficult to explain. In his own case there was no reason to suspect organic disease of any kind; there was no hemianopsia, and the hallucinations had continued for months. This would indicate a mild chronic nutritive disturbance in the cortex, without periodicity, as in migraine and epilepsy, and not limited in duration by the advance or recession of some coarse lesion, as in organic cases.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, November 24, 1890.

The President, Dr. H. C. Wood, in the chair.

Dr. Mettler read a paper. See page 19.

DISCUSSION.

Dr. Francis X. Dercum.—This is certainly an interesting and valuable paper. The doctor has raised the question —very justly, I think—in regard to the relation of the semicircular canals to vertigo. The ordinary explanation of vertigo has always been to me a doubtful one. I never could reconcile it with what we know of the morphology of the semicircular canals. Some years ago I made a study of the comparative anatomy of these structures in order to determine what light such study could throw upon their function.

They bear a distinct relation to the lateral line organs of fishes, the nerve hills of the latter being identical in structure with the maculæ acusticæ. Just as the inclosure